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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/700,217

11/03/2003

Willem Roux

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10/10/2006

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EXAMINER

PIERRE LOUIS, ANDRE

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/700,217

Applicant(s)

ROUX, WILLEM

Examiner

Andre Pierre-Louis

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2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 06082004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. Claims 1-12 have been presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Data structures not claimed as embodied in computer-readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Additionally, the claimed invention as a whole must accomplish a practical application.

That is, it must produce a "useful, concrete and tangible result." *State Street*, 149 F.3d at 1373, 47USPQ2d at 1601-02. The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (*Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96); *In re Ziegler*, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)). Accordingly, a complete disclosure should contain some indication of the practical application for the claimed invention, i.e., why the applicant believes the claimed invention is useful. However, the mere fact that the claim

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may satisfy the utility requirement of 35 U.S.C. 101 does not mean that a useful result is achieved under the practical application requirement. The claimed invention as a whole must produce a "useful, concrete and tangible" result to have a practical application.

2.0 Claims 1-12 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

2.1 Regarding claims 1-6, the claims do not produce a useful, tangible, concrete result. **See MPEP 2106 [R2]**

2.2 As per claims 7-12, the claims are directed to software per se; furthermore, the claims do not produce a useful, tangible, concrete result. **See MPEP 2106 [R2]**

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.0 Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Venkataraman (*Modeling, Analyzing, and Optimization of Cylindrical Stiffened Panels for Reusable Launch Vehicle Structures*, 1999).

3.1 In considering the independent claims 1 and 7, Venkataraman teaches the functional equivalence of a method for distinguishing from effect due to design variable changes in finite element analysis, in particular the steps of: obtaining a plurality of finite element analysis responses for a set of design experiments, wherein each of the set of

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design experiments has a specific combination of design variables values (*pg.62-67, 163-167*); constructing a metamodel from the plurality of finite element responses (*pg.4-5,29-33,128-139,154,170*); and selecting a set of outliers from the set of design experiments whose finite element analysis responses are not predicted by the metamodel (*pg.56,121-123,135-137,154-157*).

3.2 Regarding claims 2 and 8, Venkataraman teaches the steps of: identifying high likelihood bifurcation region by plotting an indicating quantity of the finite element responses of the set of outliers (*pg.128-130, 174*); and examining the finite element responses of maximum and minimum of the set of outliers (*pg.67, 137,147-157*).

3.3 With regards to claims 3 and 9, Venkataraman teaches that the metamodel is constructed using least squares fitting techniques (*pg.4-5, 154-157*).

3.4 As per claims 4 and 10, Venkataraman teaches that the metamodel is based on nodal displacement (*pg.10-13, 21,36-45,125,179*).

3.5 With regards to claims 5 and 11, Venkataraman teaches that the metamodel is based on acceleration history (*pg.10-13, 21,36-45,125,179*).

3.6 Regarding claims 6 and 12, Venkataraman teaches that the indicating quantity is chosen from the group consisting of standard deviation and range (*pg.140-141*).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1 and 7 are further rejected under 35 U.S.C. 102(e) as being anticipated by Moler (U.S. Patent No. 6,879,087).

4.1 Regarding claims 1 and 7, Moler teaches the functional equivalence of a method for distinguishing from effect due to design variable changes in finite element analysis, in particular the steps of: obtaining a plurality of finite element analysis responses for a set of design experiments, wherein each of the set of design experiments has a specific combination of design variables values (*fig.7, col.9 line 32-col.10 line 24*); constructing a metamodel from the plurality of finite element responses (*fig.7,8, col.9 line 32-col.10 line 24*); and selecting a set of outliers from the set of design experiments whose finite element analysis responses are not predicted by the metamodel (*fig.7, col.9 line 32-col.10 line 24*).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5.1 Huang et al. (U.S. Patent No. 6,212,486) teaches a method of identifying critical elements in fatigue analysis with Von Mises stress bounding and filtering modal displacement history using dynamic windowing.

5.2 Rassaian (U.S. Patent No. 6,813,749) teaches a method, system, and computer program product for multidisciplinary design analysis of structural components.

5.3 Tyron, III et al. (U.S. Patent No. 7,006,947) teaches a method and apparatus for predicting failure in a system.

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5.4 Croft (USPG_PUB No. 2004/0194051) teaches a finite element modeling system and method for modeling large-deformations using self-adaptive rezoning indicators derived from eigenvalue testing.

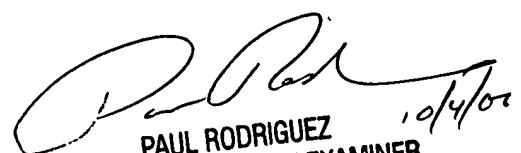
6. Claims 1-12 are rejected and this action is non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Pierre-Louis whose telephone number is 571-272-8636. The examiner can normally be reached on Mon-Fri, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 25, 2006

APL


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10/4/06